At 2122 h on 3 May 2024, we observed an adult *A. lugubris* attempting to predate an adult *Contia tenuis* (Common Sharp-tailed Snake; Fig. 1). The predation attempt occurred on a path in San Rafael, California (38.03223°N, 122.54186°W; WGS 84). We do not know if the *A. lugubris* was successful in this attempt; it seems unlikely that the snake could be fully consumed by the salamander, given the size of the prey relative to the predator. To our knowledge, this observation represents the first documented occurrence of a predation attempt by *A. lugubris* on a squamate.

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EURYCEA BISLINEATA **(Northern Two-lined Salamander). HABITAT.** *Eurycea bislineata* is a common, small salamander species native to parts of eastern North America (Petranka 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D.C. 587 pp.). This species is typically associated with small to medium-sized streams but can occasionally be found some distance from water (Bishop 1941. New York State Mus. Bull. 324:1–361; Petranka 1998, *op. cit.*; Hulse et al. 2001. Amphibians and Reptiles of Pennsylvania and the Northeast. Cornell University Press, Ithaca, New York. 419 pp.). Few observations of this species associated with lakes appear to have been published. Bishop (1941, *op. cit.*) noted a population associated with shoreline substrate at a lake in New York and Bahret (1996. J. Herpetol. 30:399–401) described a unique population from a fishless lake in New York that used this waterbody as a breeding site.

On 4 June 2024 at ca. 1900 h, I observed an adult *E. bislineata* of unknown sex (ca. 4 cm SVL) along the southern shoreline of Briar Creek Lake, Columbia County, Pennsylvania, USA (41.06552°N, 76.28369°W; WGS 84). The *E. bislineata* was submerged in several mm of water and appeared to be foraging for small aquatic insects and larval *Anaxyrus americanus* (American Toad) during ca. 5 min of observation, before retreating under submerged cover (woody debris). Briar Creek Lake is a 51-acre impoundment of East Branch Briar Creek, a small/medium-sized stream in an agricultural matrix, and has a warm-water fish community consisting of species such as *Micropterus salmoides* (Largemouth Bass) and *Lepomus* sp. (sunfishes) (Pennsylvania Fish and Boat Commission 2010. Briar Creek Lake Biologists Report. https://pfbc.pa.gov/images/reports/2010bio/4x05_21briar.htm, 6 June 2024). The *E. bislineata* was observed ca. 0.75 km and 0.5 km, respectively, from the inlet and outlet sites of Briar Creek Lake, thus suggesting the salamander was utilizing the lakeshore as its residence rather than being in close association with a stream. This observation is of note given the paucity of reports of *E. bislineata* in association with lakes (Bishop 1941, *op. cit.*; Bahret 1996, *op. cit.*) and suggests this habitat may be more commonly used by this species than previously realized.

The findings and conclusions in this note are those of the author and may not necessarily reflect those of the Pennsylvania Fish and Boat Commission.

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EURYCEA CIRRIGERA **(Southern Two-lined Salamander). PREDATION.** On 10 July 2024, while sorting fishes from the Fish Collection of the Illinois Natural History Survey (INHS), ES-B observed a partially digested salamander protruding from the anus of a fish (Fig. 1). The predator was a *Semotilus atromaculatus* (Creek Chub; Leuciscidae; INHS 170844) breeding adult with a standard length of ca. 106 mm, a total length of ca. 133 mm, and a wet mass of 33.3 g. The *S. atromaculatus* was collected in Coles Fork, ca. 0.8 km upstream from Buckhorn Creek, Knott County, Kentucky, USA, on 8 April 2000, by an unknown collector. After careful examination, the salamander was identified as an adult *Eurycea cirrigera* (Plethodontidae) (ca. 17.33 mm SVL; Fig. 1). No gills were observed on the specimen (INHS 46611). Although the specimen was in poor condition (i.e., partially digested), a tan color and two dark dorsal stripes (one stripe on each side of the body) extending to the anterior section could be observed (key characteristic). The venter had no spots or other markings, and it appeared whitened and semi-translucent, possibly due to the preservation solution (70% EtOH). Adult *E. cirrigera* are known to be semiaquatic and may inhabit diverse water bodies (Muncy et al. 2014. Copeia 2014:366–371). The species is known to be nocturnal; therefore, the hours of activity of *E. cirrigera* may overlap with the feeding hours of adult *S. atromaculatus*: early evening to about sundown (Barber and Mickley 1971. Trans. Amer. Fish. Soc. 2:283–289). *Semotilus atromaculatus* are opportunistic feeders (Stair et al. 1984. Environ. Pollut. Ser. A. 35:331–343), and adult specimens could feed on other amphibians (e.g., frogs; Washenko and Gee 1973. J. Fish. Res. Board Can. 30: 357–362). Published records indicate that *Lepomis* (sunfish) and *Etheostoma* (darters) that occur in streams will consume larval *Eurycea* (Petranka 1998. J. Herpetol. 1:48–55). However, to our knowledge, this is the first published report of *S. atromaculatus* consuming an adult *E. cirrigera*. Thanks to the effort of an unknown collector and the preserved specimens, we have documented a predatory interaction between *S. atromaculatus* and *E. cirrigera* that otherwise would be challenging to observe in the wild. Additionally, this unusual evidence highlights the importance of natural history collections as a crucial source of ecological information for various species.

PHOTO BY ENRIQUE SANTOYO-BRITO

Fig. 1. Adult *Semotilus atromaculatus* from Kentucky, USA defecating a partially digested adult *Eurycea cirrigera*.

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PLETHODON CINEREUS **(Eastern Red-backed Salamander). PLASTIC INGESTION.** A hallmark of the modern era is the proliferation of plastic waste and its relative ubiquity across both aquatic and terrestrial environments (Laist 1987. Mar. Pollut. Bull. 18:319–326; Yang et al. 2021. Sci. Total. Environ. 780:146546). When this plastic waste is consumed by wildlife it can lead to a range of deleterious effects, including physical damage through internal

Fig. 1. *Plethodon cinereus* from Newfoundland, Canada, with its stomach removed (left) and the strands of microplastic recovered from the individual's stomach contents (right).

abrasions and blockages, decreased foraging success due to false satiation, compromised buoyancy, and toxic effects from leached contaminants (Wright et al. 2013. Environ. Pollut. 178:483–492). Ingested plastics have also been seen to bioaccumulate and biomagnify trophically (Miller et al. 2020. PLoS ONE 15:e0240792). Sea turtles have garnered much of the attention regarding plastic ingestion in herpetofauna, however, it has also been reported for some marine and estuarine squamates and crocodilians (Staffieri et al. 2019. Environ. Sci. Pollut. Res. 26:1238–1249) and freshwater species of both turtles (Clause et al. 2021. Sci. Rep. 11:5672) and snakes (e.g., *Helicops angulatus*; Franca et al. 2018. Herpetol. Rev. 49:342–343). Comparatively, there are far fewer reports of terrestrial herpetofauna consuming plastic, but it has been observed in both *Gopherus agassizii* (Mohave Desert Tortoise; Walde et al. 2007. West. N. Am. Nat. 67:147–149) and *G. polyphemus* (Gopher Tortoise; MacDonald and Mushinsky 1998. Hereptologica 44:345–353; Blakley and Rothermel 2021. Herpetol. Rev. 52:631–632). However, there is a paucity of information about whether amphibians are known to ingest plastic waste.

Here, we provide evidence of plastic ingestion by *Plethodon cinereus* from an extralimital population. *Plethodon cinereus* is a medium-length (50–120 mm total length) terrestrial plethodontid salamander, native to northeastern North America (Conant and Collins 1998. A Field Guide to Reptiles and Amphibians of Eastern and Central North America. Houghton Mifflin Company, Boston, Massachusetts. 640 pp.), with a recently described invasive population on the Canadian island of Newfoundland (Baxter-Gilbert et al. 2022. Can. Field-Nat. 136:5–9). These salamanders are commonly found in and around wooded areas, often associated with damp habitats and cover objects, such as leaf litter, moss, logs, sections of bark, and rocks (Conant and Collins 1998, *op. cit.*), as well as under an array of anthropogenic debris. *Plethodon cinereus* populations exhibit generalist diets, consuming a large variety of invertebrates (Maglia 1996. Copeia 1996:576–586; Anthony et al. 2008. J. Anim. Ecol. 77:646–653).

While examining the stomach contents of 133 *P. cinereus* collected in June 2022 from an introduced population in Newfoundland, for the purposes of determining their invasive diet, we found plastic material within nine individuals, 7% of those examined. In total, 35 fibrous pieces of plastic varying in color were found (i.e., one clear, five red, and 29 dark blue; Fig. 1). The size of the consumed plastic ranged from 0.2 to 5.2 mm in length and 0.013 to 0.55 mm in width, so the majority of these can be categorized as microplastics (i.e., <5 mm; Akdogan and Guven 2019. Environ. Pollut. 254:113011) and two of them being considered plastic waste (i.e., >5 mm). Microplastics are classified as either primary (i.e., manufactured at that size) or secondary (i.e., created through the breakdown and fragmentation of larger plastic pieces) (Rocha-Santos and Duarte 2015. TrAC, Trends Anal. Chem. 65:47–53; Yurtsever and Yurtsever 2019. Chemosphere 216:271–280). All the plastic materials found within our examined *P. cinereus* appear to be secondary microplastics. Given that all the individuals collected were from suburban backyards outside of the city of Conception Bay South (47.4858°N, 52.9758°W; WGS 84; see Baxter-Gilbert et al. 2022, *op. cit.*) the presence of secondary microplastics in the soil is unsurprising. *Plethodon cinereus* is known to consume soil and other substrate materials while foraging, and thus we presume that these plastic fibers were within the soil and then accidentally ingested.

It is unclear what effect these microplastics have on the salamander's health. However, we did note that all individuals had invertebrate prey items in their stomachs and appeared in good health upon capture. Additionally, it is unknown if these plastic fibers have been accumulating in the salamander's digestive tract over time, or if the microplastics would be easily passed with fecal matter. This is an area we would suggest for future research. If these plastic fibers are unable to be easily passed and accrue over time, they could lead to reduced nutritional uptake or impaction. Furthermore, there remains the potential for chemical leaching as these secondary microplastics are further broken down as they pass through the salamander's digestive tract. Either way, there remains the potential for these ingested plastics to have long-lasting negative effects on salamander health. Given that increasing studies have found that microplastics pose a significant threat to wildlife health (Sarkar et al. 2023. Int. J. Environ. Res. Public Health 20:1745) and are found across most ecosystems (e.g., from the deep sea to the high Arctic, but increasing in concentration in urban areas), the potential for this widespread form of pollution to negatively impact amphibians is notable and merits further investigation.

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***TARICHA TOROSA* (California Newt). DIET.** *Taricha torosa* is found along the Pacific Coast of California ranging from Mendocino County to San Diego County (McGinnis and Stebbins 2018. Field Guide to Reptiles and Amphibians of California. Houghton Mifflin, Harcourt Publishing, Boston, Massachusetts. 560 pp.). *Taricha torosa* is relatively common north of Monterey County but is declining rapidly from south of Monterey County to northern San Diego County (Thomson et al. 2016. California Amphibian and Reptile Species of Special Concern. University of California Press, Berkeley, California. 390 pp.). Ritter (1897. Proc. Calif. Acad. Sci. 1:73–114) described *T. torosa* larvae feeding on decomposing organic matter and suggested the possibility of cannibalism. Storer (1925. A Synopsis of the Amphibia of California. University of California Press, Berkeley, California. 343 pp.) reported captive *T. torosa* feeding on mosquito larvae. Additional feeding behavior was also looked at by Marchetti and Hayes (2020. West. N. Am. Nat. 80:165–174) and Marchetti et al. (2022. West. N. Am. Nat. 82:77–85), which showed that larvae tend to have an ontogenetic change in foraging behavior as they grow—larger larvae eat larger food items. Marchetti et al. (2022, *op. cit.*) found larval stomach contents to be largely comprised of arthropods and gastropods, with chironomids (non-biting midges) being the most abundant prey item, while gastropods represented the second most common prey item. Thus, *T. torosa* larvae appear to be primarily predators of small aquatic invertebrates. Here, we report two separate observations that not only support the hypothesis of Ritter (1897, *op. cit.*) but indicate larval *T. torosa* may be capable of preying on other amphibian larvae.

In September 2023, while conducting a translocation study for *Rana draytonii* (California Red-legged Frog) in an artificial stock pond, we observed *T. torosa* larvae (ca. 45 mm total length) opportunistically scavenging on a dead *Pseudacris regilla* larva (Pacific Chorus Frog) (Gosner Stage 43–45) at a pond in Napa County, California, USA (38.45410°N, 122.16979°W; WGS 84; Fig. 1). As we continued surveying the pond, we also observed a similar sized *T. torosa* larva feeding on the rear leg of a live *P. regilla* larva (Gosner Stage 41–42) and dragging it down into the mid-water column of the pond. We did not observe the outcome.

Taricha consumption of anuran eggs has been previously documented. Westphal et al. (2021. Herpetol. Rev. 52:820) reported *T. granulosa* larvae consuming anuran (i.e., *R. draytonii*) eggs and

FIG. 1. A dead *Pseudacris regilla* larva being opportunistically consumed by two larval *Taricha torosa* in Napa County, California, USA.

Rathbun (1998. Herpetol. Rev. 29:165) also reported adult *Taricha* feeding on anuran eggs. Our observations of *T. torosa* larvae consuming *P. regilla* larvae are noteworthy as this is the first report of *Taricha* consumption of anuran larvae.

González-Mollinedo and Mármol-Kattán (2019. Herpetol. Rev. 50:762) reported that larval scavenging could increase the transmission risk of chytridiomycosis to the scavenging individual. Alvarez and Wilcox (2021. Herpetol. Rev. 52:821) suggested that there should be consideration when research is conducted on populations of larvae known to scavenge on other larvae that are known to be infected by chytridiomycosis, ranavirus, endoparasites or other pathogens. Our observation suggests that larval *T. torosa* do predate and engage in necrophagia with sympatric larval amphibians as they reach a size where doing so promotes growth.

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